The California Tobacco Control Program:

Can We Maintain the Progress? Results from the California Tobacco Survey, 1990-2005

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February, 2008

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Suggested Citation:
Al-Delaimy W.K., White M.M., Trinidad D.R., Messer K., Gilmer T., Zhu S-H., Mills A.L., Pierce J.P. *The California Tobacco Control Program: Can We Maintain the Progress? Results from the California Tobacco Survey, 1990-2005*. Sacramento, CA: California Department of Public Health; 2008.

This report was prepared under contract #04-35783 between the University of California, San Diego, and the California Department of Public Health.

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Introduction

The California Department of Public Health (CDPH), California Tobacco Control Program (CTCP), (formerly the Department of Health Services, Tobacco Control Section) funded by Proposition (Prop) 99 (Tobacco Tax and Health Protection Act 1988), was established as the first state-level comprehensive tobacco control program in the nation. The mission of the program is to decrease tobacco-related diseases and deaths in California by reducing tobacco use throughout the state. Peer-reviewed journal articles have attributed the cigarette consumption declines in California to the success of CTCP. However, the funding level of CTCP has stagnated in recent years while the tobacco industry has increased its investment in marketing and promoting tobacco products. Study of tobacco use at the population level is critical to assess the state of tobacco control progress, and to shed light on the effectiveness of the strategies currently employed by CTCP.

To maintain accountability and improve the service of the program, the CTCP has commissioned the California Tobacco Survey (CTS) as one of the main components of its evaluation since the inception of the program. The CTS has been conducted approximately every three years (1990, 1992, 1993, 1996, 1999, 2002, and 2005). This current report summarizes the major findings from the 2005 CTS and includes the trend data from previous surveys. Detailed survey and analytical reports are available in the appendix, further reading.

Methods

CTS is a random-digit-dialed telephone survey of California residences to collect information regarding their tobacco use behavior and tobacco-related beliefs, attitudes and knowledge. To obtain a representative and efficient sample of California's population, 58 counties were grouped into 18 sampling regions. Ten of these regions correspond to the largest counties in the state. The remaining eight regions are the geographic grouping of other smaller counties.

The interviewers administer a short screening survey after identifying a cooperative adult respondent. Permission was obtained from selected adults and adolescents for extended interviews. The extended survey included detailed information on smoking history, cessation behavior, other tobacco use, attitudes, and beliefs related to smoking and secondhand smoke (SHS).

The complexity of the sample design required advanced methodologies to weight and standardize CTS data to enable accurate point estimates, variance estimation, and appropriate trend analysis. The CTS uses the standard definition to measure cigarette smoking prevalence and cigarette consumption. Most of the items in the questionnaire have been used in multiple waves of CTS, and are either identical or highly comparable to the measures in national tobacco surveys. To illustrate the progress made in California relative to the rest of the United States, available national tobacco use surveys are also analyzed to enable direct comparisons between California trends and national trends in this report.

Results

Tobacco Control Progress and Challenges in California

Per capita, the number of cigarette packs sold in California was 3.6 per month, almost half of the rest of the United States average of 7.0 packs per month. There was a rapid decline in per capita sales from 1990 to 2002. However, this declining trend was virtually halted between 2002 and 2005.

The per capita spending gap has widened between the tobacco industry and CTCP. The tobacco industry has outspent the CTCP since 1990, growing from about 6 times more spending in 1990 to over 20 times more in 2005. The tobacco industry, starting in 1998, dramatically increased its expenditures on advertising and promotions, reaching a record high in 2005. Subsequently, the budget for CTCP dropped from $107 million in fiscal year (FY) 2001-02 to $61 million in FY 2002-03; since then it has been funded at approximately $60 million per year to date.

According to a regression model that includes smoking prevalence numbers from multiple national surveys over a span of years, and which has been adjusted for changes and differences in demographic characteristics, adult smoking prevalence is consistently lower in California than in the rest of the United States. California also had a significantly higher rate of decline than that of the rest of the United States. However, at its current rate of decline, smoking prevalence in California will not reach the 12 percent adult smoking prevalence benchmark set by Healthy People 2010.

To measure whether CTCP had an impact on increased successful cessation and reduced consumption, two groupings of states with different characteristics in terms of tobacco control were used as comparison groups. From this comparison, CTCP was associated with higher rates of successful quitting among smokers aged 20-34 years, but not among smokers in older age groups. Among adults over age 35, CTCP was associated with faster declines in cigarette consumption in California.

Smoking among California adolescents was similar to the rest of the nation at the onset of CTCP. In 2005, California adolescents smoked at a rate 50 percent less than adolescents in the rest of the United States. However, the continuing downward trend in adolescent smoking has stopped in both California and the rest of the United States.

Trends in Tobacco Use in California

Smoking prevalence among adults was 13.7 percent with the 95 percent confidence interval of ±0.5 percent in 2005. This is a 28 percent decline from the smoking prevalence in 1990. Compared to the estimate from the 2002 CTS, smoking prevalence had declined 9.2 percent by 2005.

The decline in adult smoking prevalence occurred across all demographic groups. The overall trends of decline in prevalence since 1990 are similar among men and women. Smoking prevalence among California women has been consistently lower than that of men (10.8 percent and 16.7 percent in 2005, respectively). All race/ethnic groups experienced large declines in smoking prevalence, with Hispanic/Latinos having the largest decline percentage (32.6 percent). African Americans had the highest smoking prevalence in 2005 (18.9±2.2 percent). Among males, there is no significant difference across race/ethnicity groups, while Hispanic/Latino and Asian/Pacific Islander women had much lower smoking prevalence than that of non-Hispanic White

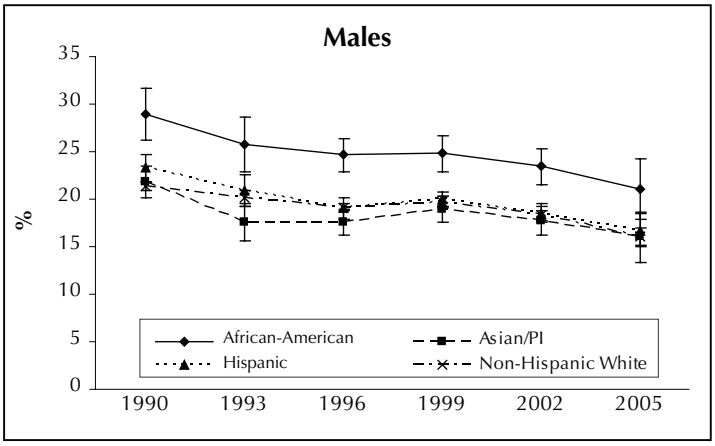
and African American women. California men aged 25-44 years old had the highest smoking prevalence in 2005 (19.7±1.6 percent). Adults 18-24 years old, who previously had an increasing smoking prevalence trend in the late 1990s, enjoyed the largest decline of any age group between 2002 and 2005 (a decline of 19.1 percent).

Following the pattern observed in the previous CTS, smoking prevalence has a reverse association with education level. High school graduates had the highest smoking prevalence in 2005 (18.2±0.9 percent). Similarly, higher smoking prevalence was associated with lower household income. Smoking prevalence significantly declined between 1990 and 2005 in all income level groups except among men whose incomes were less than $10,000, with only a 2.9 percent decline.

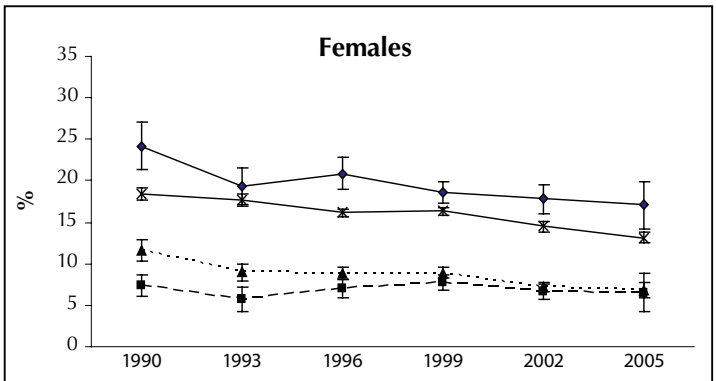
Since the inception of CTCP, all regions in California experienced a decline in adult smoking prevalence. In 2005, the highest smoking prevalence was over 16 percent in San Bernardino County and in the region that encompasses the Northern Coast and the Shasta Cascades. At the same time, Santa Clara County and Alameda County achieved the Healthy People 2010 target of 12 percent smoking prevalence. A number of other regions were close to the target.

Cigarette consumption among current smokers also declined. There was a significant decline (20 percent) in cigarette consumption among daily smokers from 17.3 cigarettes per day in 1990 to 13.8 cigarettes in 2005. Only seven percent (7.2±1.3

Standardized (2005) Smoking Prevalence by Ethnicity and Gender, 1990-2005



RACE/ETHNICITY	1990	1993	1996	1999	2002	2005
African-American	28.9	25.8	24.6	24.8	23.5	21.0
Asian/PI	21.8	17.6	17.6	18.9	17.7	16.1
Hispanic	23.3	20.9	19.0	20.0	18.5	16.7
Non-Hispanic White	21.4	20.1	19.2	19.7	18.3	16.0



Source: CTS 1990, 1993, 1996, 1999, 2002, 2005

RACE/ETHNICITY	1990	1993	1996	1999	2002	2005
African-American	24.2	19.4	20.9	18.6	17.8	17.1
Asian/PI	7.3	5.7	6.9	7.8	6.6	6.5
Hispanic	11.7	8.9	8.9	8.9	7.2	6.8
Non-Hispanic White	18.5	17.7	16.2	16.4	14.5	13.1

percent) of current smokers were heavy smokers (25+ cigarettes per day) in 2005. Over two-thirds of current smokers (68 percent) were either light smokers (<15 cigarettes) or occasional smokers (smoking somedays only).

Adult use of other tobacco products was significantly more prevalent among California men; only a fraction of women used tobacco products other than cigarettes. The prevalence of current cigar use peaked in 1996 and has remained at a high of approximately seven percent. In 2005, over ten percent (10.4±2.3 percent) of young men (18-24 year olds) currently smoke cigars, the highest in all age groups. About five percent (4.9±1.6 percent) of men who never smoked and 7.3±2.9 percent of men who were former smokers also reported being current cigar smokers. Little change and consistently low rates were observed over the years for current smokeless tobacco use and pipe use among California adults. In 2005, 8.4±1.1 percent of men and 1.8±0.4 percent of women had ever used a hookah pipe. The prevalence was particularly high among young men ages 18-24 years old (20.2±3.0 percent). Most smokers (72.9 percent) would definitely not replace their cigarettes with smokeless tobacco, dip, or chew, even if they thought it was less harmful. Among smokers who have never tried to quit, only 9.0±5.4 percent were willing to use these tobacco products.

Since the inception of CTCP in 1990, adolescent smoking was the lowest in 2005, representing a reduction of 64.8 percent. However, there are some warning signs that this decline may not continue into the future. For example, the percentage of adolescents who perceive a benefit to smoking increased 15.0 percent from 49.3 percent in 1999 to 56.7 percent in 2005, which is similar to the level in 1993. In addition, adolescent never smokers' belief that they could quit easily if they started smoking increased dramatically from 17.0 percent in 1996 to 44.2 percent in 2005, indicating a false sense of the difficulty of quitting smoking.

Smoking Cessation

Successful cessation depends on two factors: 1) the proportion of smokers who are trying to quit, and 2) the proportion of quit attempts that result in long-term success. Following the Prop 10 tobacco tax initiative in 1999, the percentage of smokers making quit attempts increased to 60.2±1.5 percent from roughly 53.7±1.2 percent in 1996. With the lack of additional tobacco tax increases since 1999 to fortify CTCP, the quit attempt percentage dropped slightly to 56.0±3.5 percent in 2005. In 2005, young adults (18-24 years old) had the highest quit attempt rate at nearly 70 percent (69.2±6.0 percent) followed by the 25-44 year old group at 60.8±4.4 percent. Among light smokers, middle-aged groups were less likely to make quit attempts.

The success rate following a quit attempt has not changed since 1996. In 2005, college graduates were more likely to have a successful quit attempt. Female smokers were more likely to quit for an extended duration.

Trends of main predictors and indicators of quitting were examined to assess the progress made in cessation in California:

- The percentage of smokers who never expected to quit was slightly lower in 2005 (10.7 percent) than it was in 1996 (13.8 percent); and in 2005, 46.1 percent of smokers reported a readiness to quit;
- Over the past decade, the percentage of California smokers who are light smokers has steadily increased to 63.1 percent in 2005;

- From 1990 to 2005, the percentage of smokers who reported smoking a cigarette within the first 30 minutes of waking has not changed significantly;
- The percentage of current smokers in California who have a smoking ban in their home increased from 35.9±1.2 percent in 1990 to 57.8±3.6 percent in 2005, a 61.0 percent increase; and in 2005, 71.8±4.1 percent of smokers who made a quit attempt had a smoke-free home in place prior to that quit attempt;
- From 1996 to 2005, the percentage of smokers who received physician advice to quit steadily increased to 61.9 percent, but the percentage of physicians who referred smokers to services and products that help quitting has remained at about one-third over the past decade;
- In 2005, 41.4±3.5 percent of current smokers had high self-efficacy for successful quitting, while moderate-to-heavy smokers who used Nicotine Replacement Therapy (NRT) for the past quit attempt had lower self-efficacy for future quitting than those who did not use NRT;
- There has been a steady increase in the use of formal cessation assistance, from 20.4±1.2 percent in 1996 to 26.1±3.1 percent in 2005, taking place mostly among the more dependent smokers.

Price, Taxes, and Purchasing Behavior

Price remains an important factor in cigarette consumption and smoking prevalence. Since Prop 99 passed in 1988, California has since had only two tax increases, the California Breast Cancer Act (two cents per pack) and Prop 10 (50 cents per pack). Cigarette price peaked in 2002 at $4.43 per pack and then dropped to $3.95 in 2005. To measure the impact of cigarette price change, an overall price elasticity of -0.42 was estimated by using historical data on cigarette consumption. This means that for every ten percent price increase on a pack of cigarettes, cigarette sales will fall by 4.2 percent. About half of the decline is expected to result from reduced smoking prevalence and about half from reduced cigarette consumption among smokers.

Depending on the source of purchasing, smokers may pay different prices for tobacco products. On average, people defined as “heavier smokers” paid less per pack than those defined as “lighter smokers” in the past decade; and heavier smokers have been paying increasingly less than lighter smokers. Moderate to heavy smokers displayed little change in purchasing behaviors in response to the price increases associated with Prop 10 and the Master Settlement Agreement (MSA) which was an agreement between tobacco industries and 46 of the United States and five United States territories.

Tax avoidance and tax evasion could counter the effect of high cigarette price on smoking behavior and have a negative impact on tax revenue. In general, tax avoidance and evasion are limited in California. The percentage of smokers who purchased their cigarettes from non-taxed or low-taxed sources such as military commissaries, Internet stores, other states, and American Indian reservations has been consistently low; it was estimated to be 3.8 percent in 2005. In addition, there is little evidence to suggest proliferation of international smuggling based on the undetectable impact on consumer reported prices in the years following the implementation of Prop 10 and the MSA.

The 2003 Cigarette and Tobacco Licensing Act imposed new licensing requirements on cigarette manufacturers, tobacco wholesalers and retailers. The Board of Equalization (BOE) employs both random and referral inspections of cigarette and tobacco products to determine the authenticity of cigarette pack tax stamps. Investigation data from BOE suggested that the overall tax evasion activities comprised no more than one percent of tobacco sales during FY 2004-05, resulting in $10 million lost in tobacco tax revenues.

Protection of Nonsmokers from Secondhand Smoke

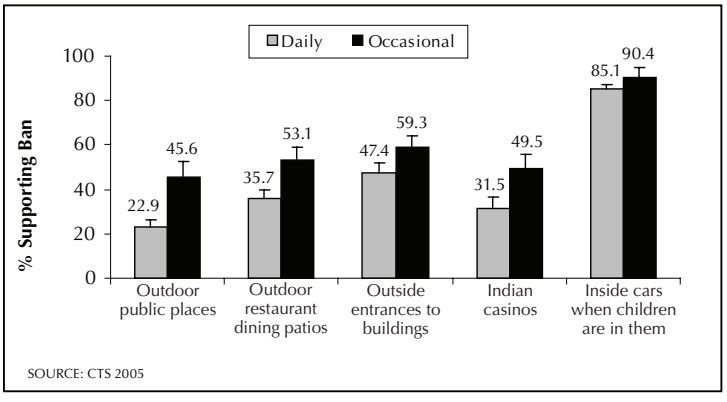
After more than a decade of the California statewide smoking ban in all indoor workplaces, 13.9±4.5 percent of nonsmokers were exposed to SHS at their workplace in 2005, a 37.9 percent drop from the 1993 level of 22.4±1.3 percent. Meanwhile, Californians increasingly prohibit smoking in their households completely, from 50.9±0.9 percent in 1993 to 78.4±2.5 percent, including the majority of smokers (57.8±3.6 percent).

Excluding the workplace and household environments, most SHS exposure occurred in parks and public outdoor places (42.9±3.6 percent), followed by bars and restaurants (15.6±2.4 percent). From 1999 to 2005, there was a significant decline in SHS exposure in other peoples' homes and bars/taverns, while repeated SHS exposure at parks and public outdoor places significantly increased.

In 2005, a vast majority of current smokers held positive beliefs and attitudes toward SHS restrictions. Over 70 percent (72.2±3.0 percent) of smokers agreed that SHS causes cancer to nonsmokers and about 90 percent of smokers agreed that SHS is harmful to the health of children and babies. More remarkable is that 85.1±1.9 percent of daily smokers, and 90.4±4.5 percent of occasional smokers, agreed that smoking should be banned inside cars when children are present.

American Indian casinos are the last indoor workplaces in California which allow their employees and patrons to be exposed to SHS. In 2005, about 90 percent of Californians said it would make either no difference (66.3±2.5 percent), or that they would be more likely to visit California's Indian casinos (24.4±2.2 percent) if smoking were prohibited. Californians who visited American Indian casinos in the past year provided a similar response, with 37.4±4.3 percent stating that they would be more likely to visit if smoking were not allowed and for 53.4±5.1 percent it would make no difference in the number of visits they make.

Daily and Occasional Smokers who Support Bans on Smoking According to the Places for Such Bans (2005)



SOURCE: CTS 2005

Young Adults: Smoking Prevalence, Uptake, and Cessation

In the mid to late 1990s, smoking prevalence among young adults had been on the upswing despite declines in smoking among other age groups. To better understand the issue and monitor the change, we over-sampled young adults (18-29 years old) and added a set of questions relevant to this population.

After smoking prevalence for young adults peaked in 1999 at 18.8 percent, it began its decline to 15.3±1.4 percent in 2005. The decline was mostly attributed to the reduced smoking initiation among younger birth cohorts; from 1999 to 2005, prevalence dropped by nearly half (45.8 percent) among 18-20 years old, which seems to be the result of the reduction in smoking experimentation rates among adolescents. Another positive sign is that young adults in California are less likely to be heavier smokers. The prevalence of daily smoking and moderate-to-heavy smoking (15 and more cigarettes per day) showed the greatest decline since 1990.

Initiation for regular smoking has been delayed over the years. Nearly half of young adult smokers 22-29 years old reported regular smoking starting after age 18. It is alarming that almost one-quarter of young adult nonsmokers remain at risk of future smoking. In addition, quit attempts among young adult smokers declined between 1999 and 2005, from 75.8 percent to 54.8 percent.

Media and Marketing Influences on Smoking

CTCP has a large-scale media campaign component. However, per capita media spending has declined and has remained well below $1 since the early 2000s. Recall of anti-smoking advertisements by the general public decreased between 2002 and 2005, parallel to the decline in per capita expenditure on CTCP's anti-smoking media. There were also fewer calls to the California Smokers' Helpline in years with lower mass media expenditures.

Of the advertisements created by CTCP, those featuring the health consequences of smoking were named as favorite anti-smoking advertisements among Californians under age 40. However, tobacco industry manipulation advertisements (led by American Legacy Foundation's "Truth" commercials) were favored among youth and young adults (15-29 year olds).

The proportion of Californians who did not have a favorite brand of cigarette advertising has increased, especially among youth. For example, nearly three quarters (74.5±3.7 percent) of 12-14 year olds reported to have no favorite cigarette advertisement, which was double the level in the 1992 and 1993 surveys (37.0±2.4 percent).

Research has linked smoking on screen by favorite movie stars to youth smoking initiation. From 2000 to 2005, approximately 23 percent of 12-14 year olds and 34 percent of 15-17 year olds were exposed to an estimated 11 or more incidents of smoking by their favorite actors.

Access to Cigarettes Among Adolescents

Perception among adults regarding the adequacy of the enforcement of laws banning tobacco sales to minors has been increasingly positive. Over the years, adolescents who never smoked were also less likely to agree that cigarettes would be easy to obtain, a decrease from 57.2 percent in 1996 to 39.8±2.5 percent in 2005. However, about 60 percent of established smokers age 15-17 thought it was easy to purchase a pack of cigarettes.

Adolescents get most of their cigarettes from social sources, with 61.9±6.4 percent reporting that others, mostly friends 18 years or older, gave them cigarettes. While state laws prohibit tobacco sales to minors, 23.0±5.3 percent of adolescent smokers reported that other people purchased cigarettes for them.

Summary

Data from the 2005 CTS, along with data from the CTS surveys of previous years, showed a steady decline in the cigarette smoking prevalence trend among California adults which reached an historic low of 13.7 percent in 2005. All demographic groups within the California population enjoyed the decline. Average cigarette consumption has also showed a continuous decline and is significantly lower than the rest of the nation. Programmatic efforts of CTCP were linked to the decline of cigarette consumption. However, in the context of limited and declining CTCP funding and surging tobacco industry advertisement and promotion investment, smoking prevalence is not likely to meet the Healthy People 2010 target of 12 percent, based on the current rate of decline.

After peaking in the late 1990s, smoking prevalence among California adolescents has steadily declined in the past decade which translates to lower smoking prevalence for young adults. However, there are some signs that the decline of youth smoking prevalence may not be sustained in the near future.

California smokers continued to make quit attempts, which peaked in 1999 after the jump of cigarette price and then declined slightly afterwards. Most smokers who tried to quit had implemented a smoke-free home. There was no significant change since the mid 1990s in the success rate following a quit attempt. Nicotine Replacement Therapy (NRT) usage has increased in recent years, but the survey found that moderate to heavy smokers who used NRT had lower self-efficacy for future quitting than those who made a quit attempt without NRT.

Price remains an important factor in determining cigarette consumption and smoking prevalence. Meanwhile, tax increases were not linked to an increase in tax evasion activities and any tax evasion induced changes in consumer prices. In general, tax avoidance and tax evasion activities have been consistently low over the years. As a result, a price increase could have a significantly positive effect on a reduction in smoking.

Nonsmokers are increasingly protected from SHS exposure, especially in the workplace and in households. The vast majority of Californians, including most current smokers, held beliefs that SHS has a negative health effect on nonsmokers; they also have positive attitudes toward regulating SHS. If American Indian casinos adopted smoking bans, most Californians would either be more likely to visit or would not change their likelihood of patronage.

This report confirms the tobacco control progress made in California. There is a strong need to boost quit attempts among current smokers by using proven strategies such as reinforcing smoke-free environments and increasing the tax on cigarettes.

The most recent CTS combined with the analysis of trend data, supports the conclusion that Californians have less risk of being a smoker and are less exposed to SHS. However, challenges lie ahead in the context of sharply increased marketing expenditures from the tobacco industry and stagnated tobacco control funding and cigarette price.

Appendix - Further Reading

Detailed information regarding the California Tobacco Survey (CTS) can be found in these reports:

Al-Delaimy WK, White MM, Gilmer T, Zhu S-H, Pierce JP. *The California Tobacco Control Program: Can We Maintain the Progress? Results from the California Tobacco Survey, 1990-2005. Volume 1*. La Jolla, CA: University of California, San Diego; 2008.

Al-Delaimy WK, White MM, Trinidad DR, Messer K, Mills AL, Pierce JP. *The California Tobacco Control Program: Can We Maintain the Progress? Results from the California Tobacco Survey, 1990-2005. Volume 2*. La Jolla, CA: University of California, San Diego; 2008.